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a force to raise it equal to the weight of the superincumbent water added to that of the pressure of the atmosphere. Because when it had settled in mud so tenacious as that of the Thames, the water once forced out from under it would in a little time be so completely excluded, as to prevent the pressure acting at all beneath it so as to give it any tendency to rise, and it would be then held down by the weight of the water above it, and by that of the atmosphere, in the same way as the two brass hemispheres, are held together by the latter pressure alone in the well known pneumatic experiment. Perhaps some method might be devised of preventing this accident, but no obvious means appear at present of doing so effectually. It will be best therefore to be extremely cautious in preparing the bed for the iron tunnel, and in sinking it very slowly and carefully into its proper situation, if the plan should receive that trial it so well merits

On a sandy or stony bottom, a caution of a precisely opposite nature would be necessary, for on such a bottom the tunnel would have a tendency to rise, when the water was pumped out of it; this however could be easily prevented by having the top formed with ledges so as to retain stones or earth thrown on it to keep it down, or by having projecting cases attached to the sides for the same purpose.

Of the plans proposed by Colonel Lenox for constructing the tunnel, the last mentioned by him seems the best, on account of its greater strength, the greater portability of the parts, and its not having the obstruction of the large internal flanches, which would occupy no less than an eighth of the internal breadth, reckoning the eighteen feet mentioned for the breadth to be outside measure. The great wrought iron screws, proposed for fastening the frames together are very objectionable on account of the speedy decay to which wrought iron is liable in or near salt water; large copper rivets would be much preferable, and would cost little if any thing more, on account of their requiring so much less workmanship in their fabrication The idea of constructing and floating off, and fixing in its place so large a portion of the tunnel as 800 feet seems a very grand one, and indicates a comprehensive and enlarged mind in its ingenious suggester, and does him much credit.

There does not seem to be any reason for confining the shape of the tunnel to a perfect right line, besides its being applicable to the part of the river for which it is proposed; where the bottom of a river was curved, the tunnel for it might be curved likewise so as to fit it, which would occasion much less cost in excavating a proper bed for it, in this case a water-tight pipe must be carried from the pump to the center of the tunnel, to free it from water. A straight tunnel would perhaps be best posited so as to be a a little lower at one end than the other, in order to give the leakage water a fall to the pump, and the bed of the Thames at the place intended for the tunnel, has just such a slope towards the Redriff side, according to the section of it published by the tunnel company

Colonel Lennox omitted to state in his directions for placing the iron tunnel, that it should be furnished with a pipe from its top, to let the air escape, as otherwise it would be impossible to let the water into it as he proposes. This pipe should have a stop cock to regulate the passage of the air; by the proper management of which, the descent of the tunnel to its own depth might be made as gradual as could be desired (if the mode of sinking it by admitting the water into it was adopted) but below this depth the descent would require to be regulated by hawsers lowered by degrees from lighters stationed above it at regular intervals, as otherwise, after it got beneath the water, it would be precipitated to the bottom with an accelerated velocity, which might either cause it to burst, or to be fixed unalterably in a position so unfavourable as to render it entirely unserviceable.

Hyperoxymuriatic acid shown to be muriatic acid deprived of Hydrogen, by Mr. Davy.

Phil. Mag. xxxvi. 70.

A paper on muriatic acid was read by Mr. Davy, before the royal society, on the 28th of June, the object of which was to detail some new facts respecting it. Finding that charcoal, though ignited to whiteness, will not burn or decompose oxymuriatic gas, he was led to institute experiments to determine whether oxygen could be procured from it by any means; and the results of his inquiries are, that there is no proof whatever of its containing that substance. Muriatic acid gas may be decomposed into oxymuriatic acid, and hydrogen. In all cases in which oxygen gas is procured from oxymuriatic gas, water is present; and the oxygen is furnished by the water; and hydrogen is always combined with the oxymuriatic gas, so that as inflammable bodies decompose water by attracting oxygen substance, oxymuriatic acid decomposes it by attracting hydrogen. Mr. Davy has detailed some experiments, which render it probable that the substance called hyperoxymuriatic acid, is in fact the simple basis of the muriatic compounds, and that it forms oxymuriatic acid, by uniting to hydrogen, and common muriatic acid by uniting to more hydrogen.

In attempting to decompose oxymuriatic acid gas, by the combustion of phosphorus and the action of ammonia, Mr. Davy discovered a very singular compound, which though composed of oxymuriatic acid and ammonia, with a little phosphorus, is neither fusible, volatile, nor decomposable at a white heat, and neither soluble in acid, nor alkaline menstrua; and possessed of no taste or smell.

Mr. Davy has detailed nine modes of decomposing common salt, founded on these new facts, and has formed nine deductions from them respecting the composition of chemical agents in general.

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*Observations....*The great use made of oxymuriatic acid in the arts renders the above information peculiarly interesting. The facts related are to be understood of oxymuriatic gas, deprived of its water by a previous process, for this gas in its common state has been shown to contain oxygen by Mr. Davy himself, having in his lectures exhibited the combustion in it of various inflammable substances, of which that of leaf copper was peculiarly brilliant.

Though dry oxymuriatic and muriatic gases, do not as yet yield oxygen to chemical operations, we must not conclude that they are proved not to contain it, on the contrary there are many strong analogies to support the affirmative, and the most enlightened chemists are of this opinion.

An account of the Method of manufacturing Salt at Moutiers, in the Department of Mont-Blanc. By M. Berthier, Mine Engineer.

Journal Des Mines.

Continued from p. 62, No. XXIV

When the brine which has been passed through these sheds, has arrived to, at least, 16° of concentration, it is conveyed into the clearing cisterns.

These clearing cisterns are large basins formed of planks enclosed in covered buildings. The salt-work has two of them, one on each side of the river. In these cisterns the brine which has been graduated is kept in store, ready to be conveyed to the boilers. Here it becomes clearer, and deposits every substance that it holds suspended.

There are at the salt works four boilers, of an equal size and form, to evaporate the graduated brine. They are between seven and eight metres long, five or six broad, and half a metre deep. Their solid contents is 23114 decimetres cubes, and when filled with brine they hold 20800. They are made of strong iron plates, between 0 004 and 0 005 met. (1-6th in.) thick, fastened together by rivets. The bottom of them is level with the floor of the boiling-house, and sustained at its circumference by twelve cast iron pillars, 0 12 metres square. Besides these, there lie across the boilers even with their edge, very large beams parallel to one another, to which a great number of hooks are fastened which are fixed to the bottom of the boiler. The under part of these boilers is entirely open. One part is taken up by the fire place, and the flame circulates under the remainder. The